STAR Satellite Oceanography & Climatology Division (SOCD)

SOCD Organization

SOCD Chief: *Dr. Paul M. DiGiacomo*

Ocean Sensors Branch

Chief: *Dr. Alexander (Sasha) Ignatov*

- Sea Surface Temp, Ocean Winds, Ocean Optics & Water Quality (e.g. Chesapeake Bay)

Marine Ecosystems & Climate Branch

Chief: *Dr. Menghua Wang*

- Ocean Color, Coral Reefs, Sea Ice, Synthetic Aperture Radar, Blended SST

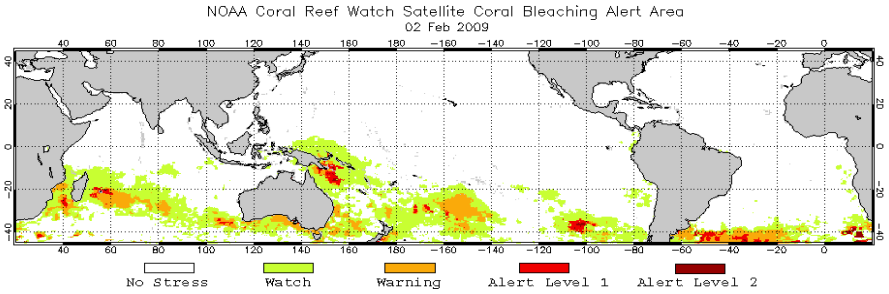
Laboratory for Satellite Altimetry

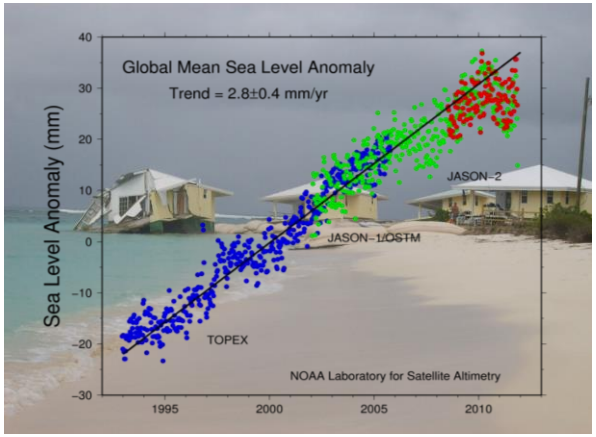
Chief: *Dr. Laury Miller*

- Sea Level, Bathymetry, Waves, Sea Ice/Climate

Science Teams: R&O

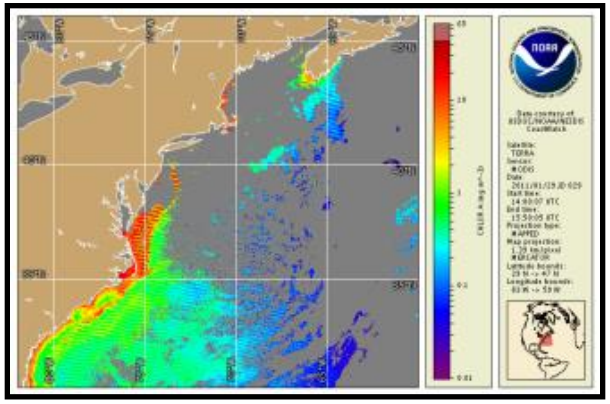
- Sea Surface Height
- Sea Surface Roughness
- Sea Surface Salinity
- Sea Surface Temperature
- Ocean Color Radiometry
- Ocean Surface Vector Winds
- CoastWatch/OceanWatch
- Coral Reef Watch
- Sea Ice and Polar Dynamics





Major Programs/Activities

- JPSS: Ocean Color & SST EDRs
- GOES-R: SST (& Ocean Dynamics)
- JASON Satellite Radar Altimeter Program
- NOAA GCOM Program Scientist
- National Ice Center Chief Scientist
- Foreign Sensors: Winds, SAR, etc
- Marine Optical BuoY (MOBY)
- Coast/Ocean/Coral Reef/Polar-Watch



ProTech - SOCD

Satellite Ocean Remote Sensing

- Facilitates development and delivery of high quality, fit for purpose multi-sensor satellite oceanographic data streams and derived products
- Ongoing research & development, product improvements and scientific maintenance in algorithms, calibration and validation, and user demonstrations and applications
- Provides user community with experimental space-based data, products and services for the oceans and coasts
- Work assignment averages ~$4M per year

ProTech - SOCD

Satellite Ocean Remote Sensing efforts provide

- Algorithm (product) development and enhancements
- Calibration/validation support
- Science maintenance for operational products
- Data/product access and delivery infrastructure
- Engaging users for satellite ocean data product development and refinements

ProTech - SOCD

SOCD Applications and Research Science Teams

1. Coral Reef Watch (CRW)
2. Ocean Color (OC)
3. Ocean Surface Vector Winds (OSVW)
4. Sea Ice (SI)
5. Sea Surface Height (SSH)
6. Sea Surface Roughness (SSR)
7. Sea Surface Salinity (SSS)
8. Sea Surface Temperature (SST)

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1. Coral Reef Watch (CRW)
   - Forecast coral reef bleaching, thermal stress, and light stress
     - Satellite-based using geo-polar blended SST
     - Model-based using NCEP CFS
     - New system using satellite SST and light
   - Monitor land-based sources of pollution over U.S. coral reef systems and nearby watersheds
   - End-to-End development and support for user-driven applications

   * Secondary office, Townsville, Australia

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2. Ocean Color (OC)
   - Support monitoring and understanding of aquatic ecosystems of the Great Lakes, and coastal and open oceans
   - Reduce uncertainties in satellite ocean color radiance measurements
   - Characterize in-water optical properties
   - Improve atmospheric correction algorithms
   - Develop and support user-driven applications (e.g., water quality, harmful algal blooms)

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3. Ocean Surface Vector Winds (OSVW)
   - Support operational marine weather and sea state applications – new and improved products
   - Ocean surface wind nowcasts, forecasts, and warnings
   - Airborne field work for product validation and improvements
   - Ocean storms
     - Tropical cyclone warnings

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4. Sea Ice (SI)
   - Production and development of analyses and forecasts of sea ice conditions on global and regional scales - sea, lake, river
     - Concentration
     - Age
     - Type
     - Motion
     - Edge location
     - Thickness

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5. Sea Surface Height (SSH)
    - Sea level rise
    - Ocean surface topography
    - Hurricane intensification
    - Global bathymetry

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6. Sea Surface Roughness (SSR)
   - Coastal monitoring (sea surface winds, wave height)
   - Marine debris
   - Hurricane hazard response
     - Oil spill detection and monitoring
     - Oil platform change detection
   - Sea and lake ice detection and monitoring

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7. Sea Surface Salinity (SSS)
   - Support operational modeling for ocean forecasting
   - Global ocean data assimilation for climate forecasting
   - Upper ocean heat content

ProTech - SOCD

8. Sea Surface Temperature (SST)
   - Science quality data streams, including cal/val, for geostationary and polar-orbiting SST sensors
     - Operational weather forecasting
     - Fisheries management
     - Marine ecosystem monitoring & management